



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification⁴ :

A63H 33/38

A1

(11) International Publication Number:

WO 89/ 00877

(43) International Publication Date: 9 February 1989 (09.02.89)

(21) International Application Number: PCT/GB88/00612

(22) International Filing Date: 27 July 1988 (27.07.88)

(31) Priority Application Number: 8717735

(32) Priority Date: 27 July 1987 (27.07.87)

(33) Priority Country: GB

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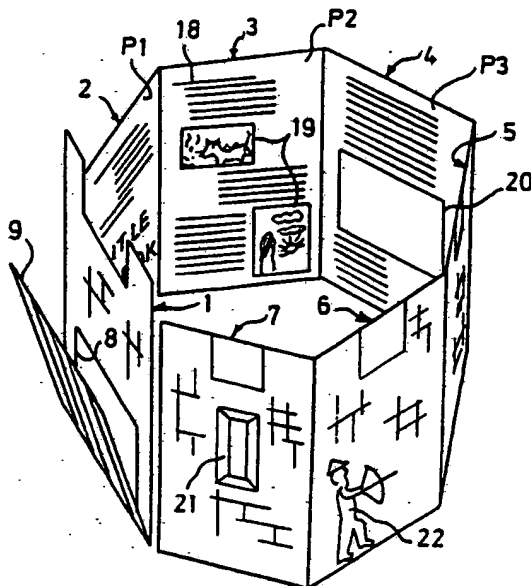
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(GB).(81) Designated States: AT (European patent), AU, BE (Eu-
ropean patent), BR, CH (European patent), DE (Eu-
ropean patent), DK, FI, FR (European patent), GB
(European patent), HU, IT (European patent), JP,
KP, KR, LU (European patent), NL (European pa-
tent), NO, SE (European patent), SU, US.

Published

With international search report.

(54) Title: COMBINED BOOK AND PLAY MODULE ASSEMBLY



(57) Abstract

A combined book and play module is disclosed in which text appears on one surface of the assembly and can be read when the assembly is in its "book" configuration and graphics representative of a play environment, particularly the exterior of e.g. a castle represented by the assembly in "play module" configuration appears on the opposite surface. The assembly comprises panels (1, 2, 3, 4, 5, 6 and 7) which are hinged together at their edges (12, 13, 14, 15, 16 and 17) so that the assembly may be folded in concertina fashion to a book configuration in which text appears on faces P1, P2, P3, P4 and P5. When the assembly is unfolded and inverted, the opposite surface carrying graphics appears on the exterior of a "play module". An aperture (8) is provided on the front cover of the assembly which in the book configuration reveals a title (10). A further flap (9) hinged at (11) may be provided to simulate a drawbridge in the "play module" configuration the assembly may also be provided in the form of a tent, boat, train or puppets theatre. The panels are suitably hinged together with plastic hinges.

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COMBINED BOOK AND PLAY MODULE ASSEMBLY

The present invention relates to a combined book and play assembly which is inter-convertible between a first "book" configuration in which hinged panels making up the assembly can be opened in the manner of the pages of a book and a second "play module" configuration in which the panels form a self-supporting play module.

The play module may for example be a play house if a smaller size maybe a dolls house for example. In one embodiment the play module is a puppet theatre.

Play houses and dolls houses formed of hinged panels are well known and examples are described in US 1,899,241; US 3,548,552; US 4,011,682; DE-U-84/03240 and DE-U-76/06,920.

DE-B-1,246,486 discloses a picture book formed of panels jointed by living hinges. GB 1,585,468 discloses an educational book for children in which a sheet of paper or card is provided with cut out and is folded in concertina fashion. The resulting back-to-back folded portions are selectively glued together around the cutout to enable a cut out on one page to be removed by a child to expose a further cut out on the same page.

US 3,434,233 discloses a combination book and play house formed of hinged panels in which an assembly of hinged panels can be folded in concertina fashion to form the pages of a book and may be opened out to form a play house. The faces of the panels which are visible in the book configuration carry text and are visible as the exterior surface of the play house in the play house configuration. Accordingly, this surface is required to carry both text in the centre of the panels and simulated brickwork bordering each portion of text in order to simulate partially the exterior of the play house. It is disclosed that both sides of the panels may be imprinted.

The arrangement described in US 3,434,233 is somewhat complex and in one embodiment the assembly is divided into two units which in the "book" configuration

are screwed together by sets of nuts and bolt and in the "play house" configuration are separated and form two storeys of the play house. In another embodiment, in which the assembly comprises a single unit and forms a single storey play house the three edges of the two end panels are bolted together in the "book" form and must be unbolted and then bolted together in a slightly different manner to form the "play house" configuration.

One object of the invention is to provide a combined book and play module assembly which is more realistic in the "play module" configuration.

A further object of the invention is to provide a combined book and play module assembly which provides a greater element of surprise to a child when converting the assembly from its "book" form to its "play module" form.

A further object of the invention is to provide a combined book and play module assembly of simplified construction.

Accordingly the invention provides a combined book and play module assembly comprising a plurality of panels carrying text and graphics representative of a play environment, the panels being hinged together in such a manner that in a first configuration they can be opened in the manner of the pages of a book and in a second configuration distinct from the first configuration they form a self-supporting play module, the assembly being inter-convertible between the first and second configurations, characterised in that said graphics appear predominantly on those faces of the panels which are one side of the assembly and said text appears predominantly on those faces of the panels which are on the opposite side of the assembly, said one surface being hidden in the interior of the assembly in the first configuration and being exposed as the exterior surface of the play module in the second configuration.

Thus the assembly in accordance with the invention can be converted from the "book" configuration to the

"play module" configuration by unfolding the panels and inverting the structure so that the graphics (which typically may represent the exterior of a play house) which were hidden in the interior of the book become
5 exposed as the exterior of the "play module" configuration. This feature has the advantage that the whole of this surface can be covered by graphics so that in the "play module" configuration the external appearance is not compromised by the presence of large areas of text.
10 This feature also has the advantage that in the "book" configuration, the graphics maybe hidden completely, so that when the assembly is converted to the "play module" configuration, a child who has read the book is presented with a completely unexpected structure with which to play.
15 Furthermore the text which appears on the interior surface of the assembly in the "play module" configuration can be read by the child within the interior of the play module, assuming that the latter is of "play house" size, which typically implies that the panels have a height in the
20 range of 0.7 metre to 2.0 metres. It should however, be noted that the invention also includes within its scope combined book and play module assemblies of smaller size wherein the height of the panels is in the range of 0.1 metre to 0.7 metre for example, which is more suitable for
25 table top use, e.g. as a dolls house.

In a preferred embodiment the assembly of the invention is inter-convertible between the "book" and "play module" configurations without requiring the use of a tool, such as a screw driver which is required to unbolt
30 the end panels of the play module/book assembly disclosed in US 3,434,233. However, it is envisaged that in certain embodiments, the respective edges of the two panels which are out most in the "book" configuration may be clipped together in the play module configuration in order to
35 provide further stability. By dispensing with the requirement to use a screw driver or other tool to enable the assembly to be inter-converted between the two

configurations, it becomes possible for even a fairly young child to convert the assembly from the "book" configuration to "play module" configuration which provides further enjoyment for the child and also has some educational value.

Further preferred features of the invention are defined in the claims.

Preferred embodiments of the invention are described below by way of example only with reference to Figures 1 to 14 of the accompanying drawings, of which:

Figure 1 is a sketch perspective view of a combined book and play module in accordance with the invention;

Figure 2 is a sketch perspective view of the assembly of Figure 1 in its "book" configuration;

Figure 3 is a sketch perspective view of the embodiment of Figures 1 and 2 in its "play module" configuration;

Figure 4 is an elevation of the assembly of Figures 1 to 3 showing the panels completely unfolded;

Figure 5A is a sketch perspective view of a second embodiment of the invention;

Figure 5B is a view similar to Figure 5A showing a first step in its conversion from the "play module" to the "book" form;

Figure 5C is a sketch perspective view showing a subsequent step in the conversion in the assembly of Figure 5B to its "book" form;

Figure 5D shows the assembly of Figures 5A to 5C in its final "book" form;

Figure 6 is an elevation showing the panels of the embodiment of Figure 5 in a completely unfolded configuration;

Figure 7 is a sketch perspective view of a further embodiment of the invention in its "play module" configuration;

Figure 8 is a sketch perspective view of the assembly of Figure 7 in its "book" configuration;

Figure 9A is a side elevation of a further embodiment of the invention in the form of a train;

Figure 9B is a top plan view of Figure 9A;

Figure 9C is a top plan view showing the assembly of

5 Figure 9 in a state approaching its "book" configurations;

Figure 10 is a sketch perspective view of a hinge suitable for use in the invention;

10 Figure 11 is a sketch perspective view of a hinged panel assembly suitable for use in the invention and incorporating a different hinge;

Figure 12 is a sketch perspective view of a further embodiment of the invention in its "play module" configuration;

15 Figure 13 is a plan view of a further hinge arrangement suitable for use in the invention, and

Figure 14 is a sketch perspective view of an assembly in accordance with the invention in its "play module" configuration, which takes the form of a puppet
20 theatre.

Referring to Figures 1 to 3, the assembly shown is intended to represent a castle in its "play module" configuration as shown in Figure 3 and comprises seven generally rectangular panels 1,2,3,4,5,6 and 7 which are
25 hinged together at their side edges 12,13,14,15,16 and 17 in "concertina" fashion. As shown in Figure 1 faces P1,P2,P3,P4 and P5 of the panels lie on one surface of the assembly and as shown in Figure 3 carry text 18 thereon. In the "book" configuration shown in Figure 2 side edges
30 12,1 and 14 of the assembly are gathered together about spine axes and the resulting pairs of panels can be opened in the manner of the pages of a book and the text appearing on adjacent panels can be read sequentially. As shown in Figures 1 and 2, the front surface of panel 1
35 forms the Front Cover of the book and as can be seen in Figure 3 is also part of the exterior surface of the castle in the "play module" and "configuration". As best

seen in Figure 1, the front panel 1 is provided with an aperture 8 which in the book configuration serves to reveal the title 10 and in the "play module" configuration enables a child to gain access to the castle. The front
5 panel 1 is suitably approximately one metre in height. A further panel 9 is hinged to the lower edge 11 of panel 1 and simulates a draw bridge as is best seen in Figure 3.

The exterior of the castle as shown in Figure 3 is provided with suitable graphics representing the stonework
10 of a castle and a further aperture 21 may be provided to simulate a window. One of more characters 22 may also be represented on the exterior in order to provide further interest.

It is not necessary that the entire page surfaces
15 P1,P2,P3,P4 and P5 should be covered with text; illustrations may be provided as indicated at 19 and additionally blank spaces such as that indicated at 20 may also be provided which may be coloured-in by a child. These page surfaces are suitably a paper of a light.

20 Figure 4 shows the assembly of Figure 3 prior to folding. The surface shown in Figure 4 is interior in the configuration shown in Figure 3 but exterior in the configuration shown in Figure 2.

The panels 1 to 7 are suitably formed of foamed
25 plastics material, particularly polystyrene foam such as that produced by Monsanto and sold under the Registered Trade Mark Fome-Cor. This board is provided with an exterior lamination of smooth white paper and is light in weight and is easy to machine. It has the further
30 advantage of being resistant to moderate heat such as from a radiator and has the further environmental advantage that it does not require the use of pluralcarbons in its manufacture.

Figures 5A to 5D show a further embodiment of the
35 invention in various stages between its conversion from the "play module" configuration (in which it represents a tent) to the "book" configuration.

As shown in Figure 6, this assembly comprises four square panels 23, 24, 25 and 26 of which panels 24 and 25 are hinged together at their common edge 34 and are also hinged at their transverse edges to panels 23 and 26 respectively. It should be noted that the adjacent edges 30 and 31 of panels 26 and 23 are not hinged together. Triangular closure panels 27 and 28 are hinged to edges 33 and 32 of panels 25 and 26 respectively.

Referring to Figure 5A, the surfaces of the panels which form the front cover page 1, page 2, and page 3 of the assembly in the book configuration are indicated by "FC" "P1", "P2" and "P3" respectively in orientations which conform to the text on the respective panel surfaces. The panels are typically one metre in height and to enable a child to gain access to the tent, panel 28 is hinged about its medium line 29. To convert the assembly to its book configuration panels 27 and 28 are first folded about edges 33 and 32 respectively as indicated by arrows, which results in the configuration shown in Figure 5B.

In this configuration the panels 27 and 28 lie against panels 25 and 26 respectively. Next, panels 25 and 26 and their associated triangular closure panels 27 and 28 are folded about the axes defined by edges 30, 31 and 34 as indicated by arrow B which results in the configuration shown in Figure 5C.

Finally, the resulting assembly is folded about coincident at fold lines 35 as indicated by arrow C as shown in Figure 5C to give the "book" configuration shown in Figure 5D. It will be appreciated that the reverse process is much simpler and can be undertaken by any reasonably intelligent child.

It should be noted that the graphics shown on the exterior of the tent in Figure 6 do not represent a tent but represent a play environment appropriate to a tent, namely a jungle.

Figures 7 and 8 show an embodiment similar to that of Figures 5 and 6 but which is slightly simpler and

preferred. In the tent configuration shown in Figure 7, rectangular panels 36,37,38,39,40 and 41 are hinged together as indicated by chain dotted lines and are joined to a common end portion which is in the form of two
5 triangular panels 28A' and 28B' which are hinged together at their common edge 29' and are hinged at their adjacent transverse edges 32' to panels 36 and 39 respectively.

In the "book" configuration shown in Figure 8, panels 28A' and 28B' are folded inside out so that the
10 central pages are triangular in shape. It will be noted that edges 42 and 43 shown in Figure 7 are not hinged together but are slightly separated to enable the assembly to be converted between its two configurations.

Figure 9 shows a further embodiment of the invention
15 which is intended to represent a train comprising a locomotive 44 and one or more carriages 45 in the "play module" configuration shown in Figure 9A. Both the locomotive and the carriage may be either of floor standing size to enable a child to play within the locomotive and carriage or may be of desk top size to enable a child to handle the locomotive and carriage in
20 the manner of a toy train set. The locomotive and carriage comprise respective front panels 46 and 62 which form the front covers of the associated books in the "book" configuration. Panel 46 depicts a character 50, the name of the character 51 and the title of the story 52 and panel 62 depicts an associated character 50', the name of the associated character 51' and the title of another story 52' which is linked to the story 52 either by a
25 common character or a common theme. Thus it is envisaged that the locomotive 44 and carriage 45 may be sold separately and collected as a series, the locomotive and the carriage forming a set in their "play module" configurations and their associated stories forming a
30 corresponding set.

As shown in Figure 9B, locomotive 44 comprises panels 46,47,48 and 49 which form one side of the

locomotive and panels 53,54,55 and 56 which form the opposite side and are illustrated similarly to those shown in Figure 9A. Panel 57 forms the rear of the locomotive. Similarly, carriage 45 is made up of panels
5 60,61,62,63,64,65,66 and 67.

As shown in Figures 9B and C the panels are joined by living hinges of sheet material 59 on the inside and similar living hinges of sheet material 58 on the outside. The sheet material may be of paper or other material
10 imprinted with suitable text and/or graphics or alternatively it may be of transparent plastic or other flexible material to reveal text and/or graphics printed directly on the panels. Each individual sheet of this material covers at most two panels so that each pair of
15 adjacent panel edges are covered by only one layer of the sheet material. This enables the assembly to be folded in concertina fashion as shown in Figure 9C to enable it to be converted to the "book" configuration. To enable this inter-conversion to take place, panels at 46 and 47 are
20 not joined together at their adjacent side edges. The panels of carriage 45 are provided with similar sheets of material 58 and 59 which have been omitted for the sake of clarity and can be folded to a similar configuration to that shown in Figure 9C. Again panels 61 and 62 do not
25 have their side edges joined together. However, it is envisaged that removable hinges may be provided to connect panels 46 and 47 together and to connect 61 and 62 together, these hinges being removed to enable the assembly to be converted to its "book" configuration.

30 Figure 10 shows a preferred form of hinge for use with the previously described embodiment which comprises a moulding 69 of elastomeric material which has a central neck portion of thickness typically one millimetre or less and a pair of serrated gripping surfaces 70 at each end
35 which are separated by a distance G which is typically three millimetres in order to accommodate the panels (not shown). Hinge 68 may be formed of any elastomeric

material which is sufficiently soft to enable the hinge to be slid out of engagement with a panel without damaging the surface of the panel. If the serrations are parallel with the hinge axes as shown in Figure 10 the hinge may suitably be slid along its axes. It is envisaged that combined book and play module assemblies in accordance with the invention may be sold in disassembled form, namely a set of panels and a set of hinges together with instructions for connecting the panels with the hinges.

Figure 11 shows a hinge arrangement similar to that shown in Figure 10 but is slightly less preferred. It differs from that in Figure 10 by incorporating longitudinal barbs at 71 on its gripping surfaces, instead of serrations. This hinge at 68' also incorporates a narrow neck portion at 69' which constitutes a living hinge.

Figure 12 shows a further embodiment of the invention which represent a galleon. Text 18 is visible on the interior of the assembly and hinges 68 are shown connecting the panels.

Figure 13 shows a further possible hinge arrangement for use in the invention in which two strips of tape at 72 and 73 extends longitudinally across adjacent side edges of the panels and meet at their centre to form a living hinge 69". However, this embodiment has the disadvantage that it cannot easily be disassembled.

Figure 14 shows a further embodiment of the invention in the form of a puppet theatre which again carries text 18 on the interior surfaces of panels 74, 75, 76, and 77 and can be converted to a "book" configuration in a manner similar to the previously described embodiments. An aperture 78 is provided in the front panels 74 to enable glove puppets 80 manipulated within the assembly to be seen by an audience and, in the book form, to reveal a title of a play to be performed by the glove puppets which is shown at 10 on panel 75. A script 81 may also be provided with the assembly. The side edges

of the panels are hinged in a manner similar previously described in connection with the other embodiments.

CLAIMS

- 1) A combined book and play module assembly comprising a plurality of panels (1-7;23-28;28;36-41;46-49;53-56;74-77) carrying text (18) and also graphics representative of a play environment, the panels being hinged together in such a manner that in a first configuration they can be opened in the manner of the pages of a book and in a second configuration distinct from the first configuration they form a self-supporting play module, the assembly being interconvertible between the first and second configurations, characterised in that said graphics appears predominantly on those faces of the panels (1-7;23-28;28';36-41;46-49;53-56;74-77) which are on one surface of the assembly and said text appears predominantly on those faces of the panels which are on the opposite surface of the assembly in the first configuration and being exposed as the exterior surface of the play module in the second configuration.
- 2) A combined book and play module assembly as claimed in claim 1, further characterised in that the assembly is interconvertible between the first and second configurations without requiring the use of a tool.
- 3) A combined book and play module assembly as claimed in claim 1 or claim 2, having an access aperture (8;78) in at least one panel (1;74), further characterised in that said panel (1;74) which in said first configuration forms a cover or a part of the cover, of said book, the title (10) of the book being located on an adjacent panel exposed by and framed within said aperture in said first configuration.
- 4) A combined book and play module assembly as claimed in claim 3, wherein a further panel (9) is provided which can be opened to reveal said aperture (8;78) and said title (10).
- 5) A combined book and play module assembly as claimed in any preceding claim, further characterised in that said panels (1-7) etc. are hinged together by hinges (68;68')

of plastics material, at least some of said hinges being releasable from said panels.

6) A combined book and play module assembly as claimed in claim 5, further characterised in that said hinges
5 (68;68') are formed of elastomeric material and each have two pairs of opposed gripping surfaces being serrated and the hinges being releasable by sliding their gripping surfaces out of engagement with the panels.

7) A combined book and play module assembly as claimed in
10 claim 5 or claim 6, further characterised in that said hinges (68,68') have a central neck portion (69;69') which constitutes a living hinge.

8) A combined book and play module assembly as claimed in any of claims 1 to 4, further characterised in that
15 flexible sheet material (58,59) is laminated on said panels (46-49, 53-56) over adjacent edges thereof and forms living hinges between them said flexible sheet material being transparent to reveal said text and/or graphics or being printed with said text and/or graphics.

20 9) A combined book and play module assembly as claimed in claim 8, further characterised in that said sheet material (58,59) is cut into separate sheets at alternate hinged pairs of adjacent panel edges on one side of the panels and in that said sheet material is laminated on the other
25 side of the panels and is similarly cut at alternate hinged pairs of adjacent panel edges on the other side of panels, wherein each hinged pair of adjacent panel edges is joined on one side only by a sheet of said material which forms a living hinge.

30 10) A combined book and play module assembly as claimed in any preceding claim, further characterised in that said panels (1-7 etc.) are formed of foamed plastics material.

11) A combined book and play module assembly as claimed in any preceding claim, further characterised in that in said
35 second configuration, said assembly represents a train, boat, motor vehicle or aircraft, said text (18) is the text of a story set in or relating to a train, boat, motor

vehicle or aircraft as the case may be and appears exclusively on said appropriate surface and substantially all of said one surface is covered with graphics representative of the exterior of said train, boat, motor vehicle or aircraft as the case may be.

12) A combined book and play module assembly as claimed in any preceding claim further characterised in that at least one panel (24;25;28a',28b') is hinged at adjacent transverse edges thereof to respective adjacent panels, whereby in said second configuration a three-dimensional structure is formed in which said respective adjacent panels are transverse to each other.

13) A combined book and play module as claimed in claim 12 as dependent on any of claims 1 to 10 characterised in that in said second configuration, the assembly represents a ridge tent.

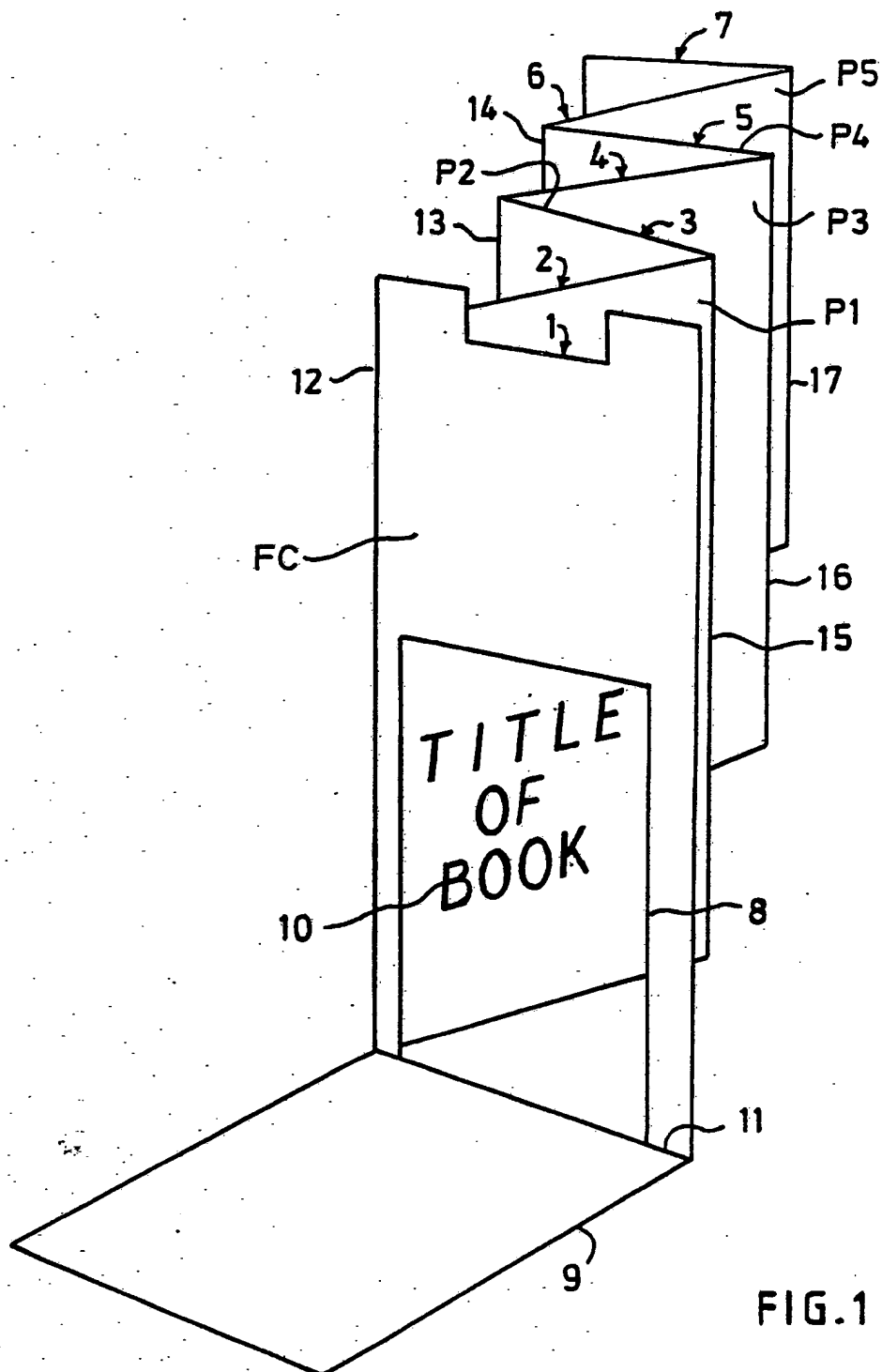
14) A combined book and play module assembly as claimed in any preceding claim wherein the maximum height of said panels (1-7 etc.) is in the range 0.7 metre to 2.0 metres.

15) A combined book and play module assembly as claimed in any of claims 1 to 13 wherein the maximum height of said panels (1-7 etc.) is in the range 0.1 metre to 0.7 metre.

16) A combined book and play module assembly as claimed in any preceding claim which in said second configuration, represents a puppet theatre.

17) A set of combined book/play module assemblies as claimed in any of claims 1 to 15 wherein each assembly represents one toy of a set (44;45) when in said second configuration and forms one book of a corresponding set when in said first configuration the respective books of said corresponding set containing stories linked by a common character or theme.

1-9.



SUBSTITUTE SHEET

2-9

FIG.2.

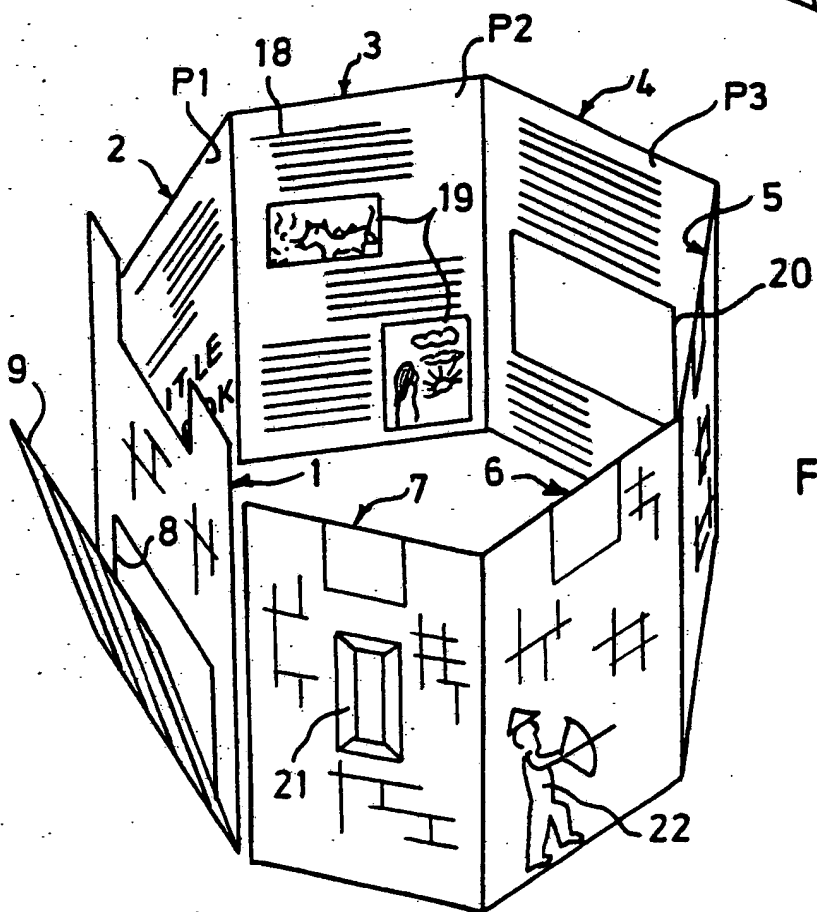
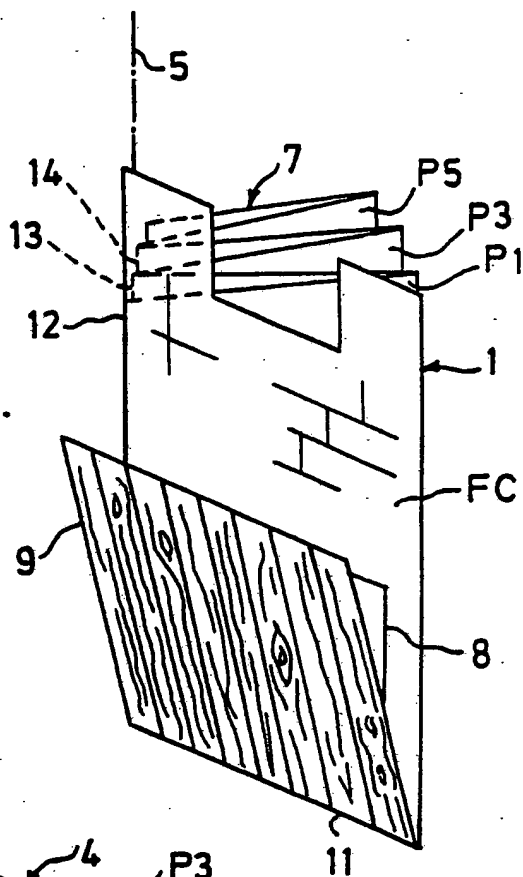


FIG.3.

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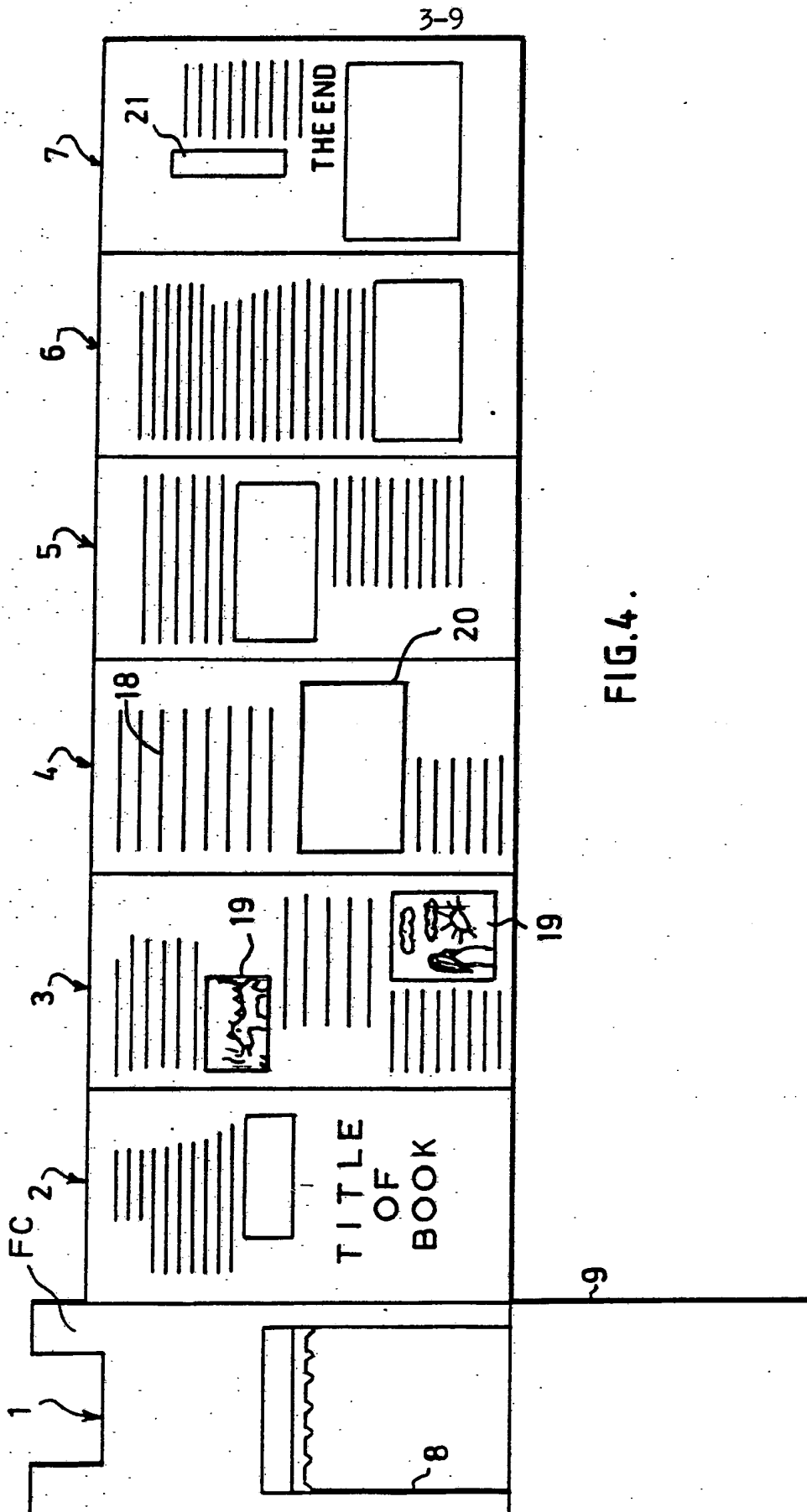
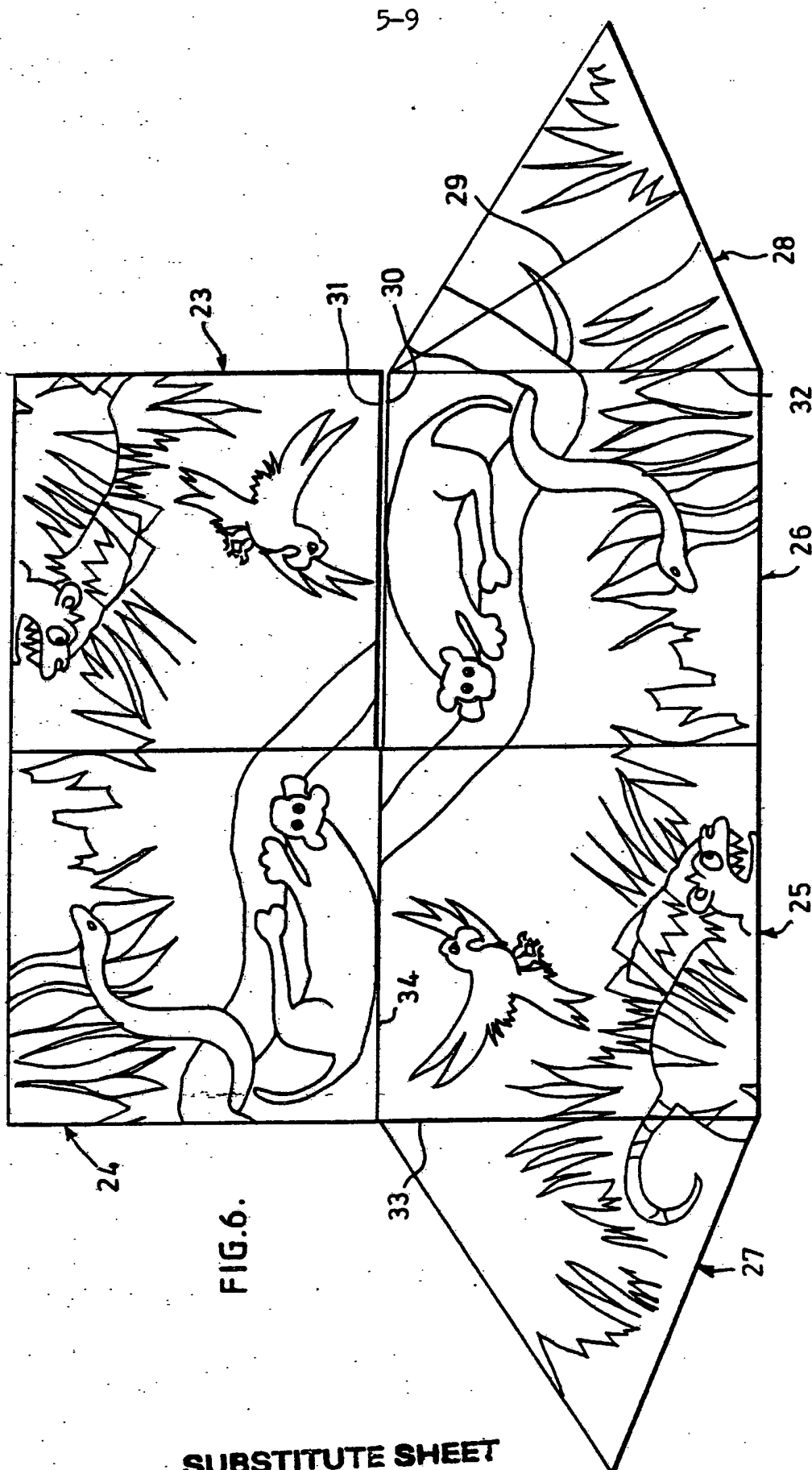


FIG. 4.



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6-9

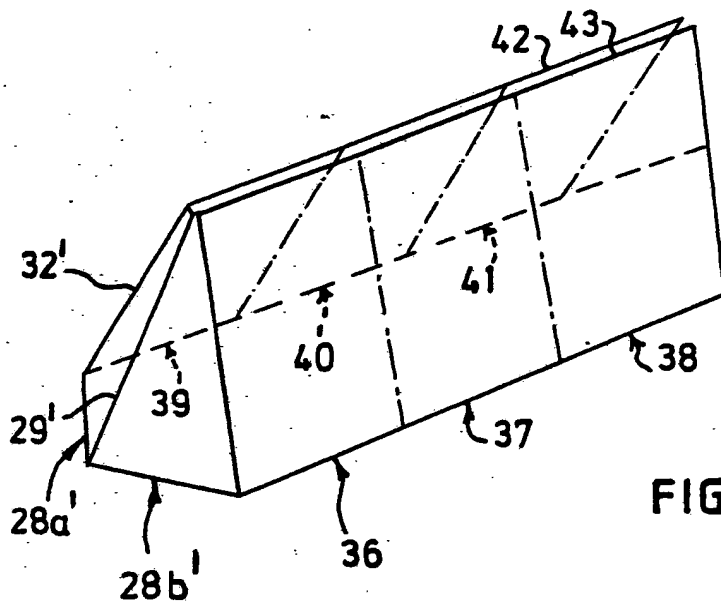


FIG. 7.

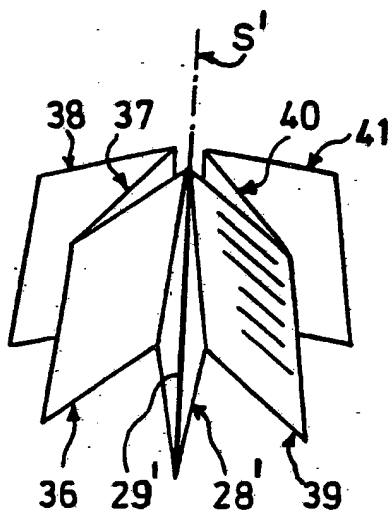
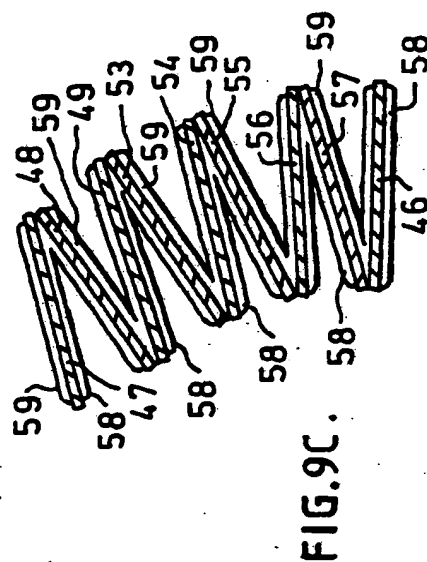
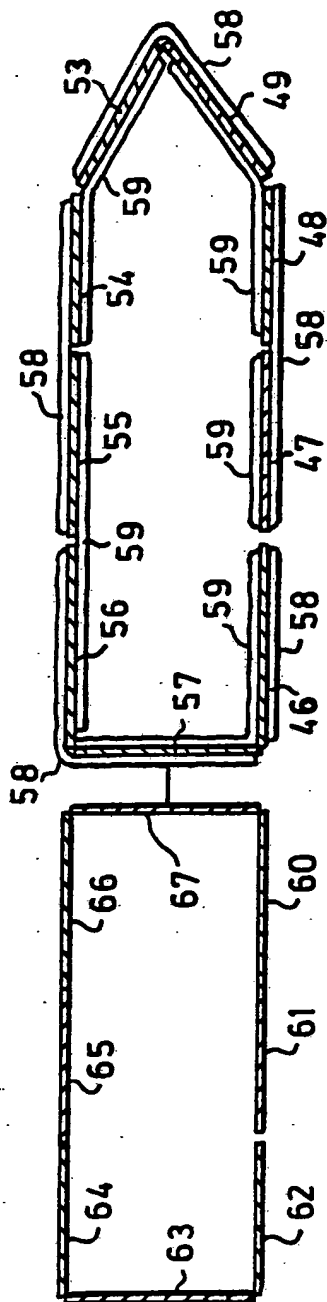
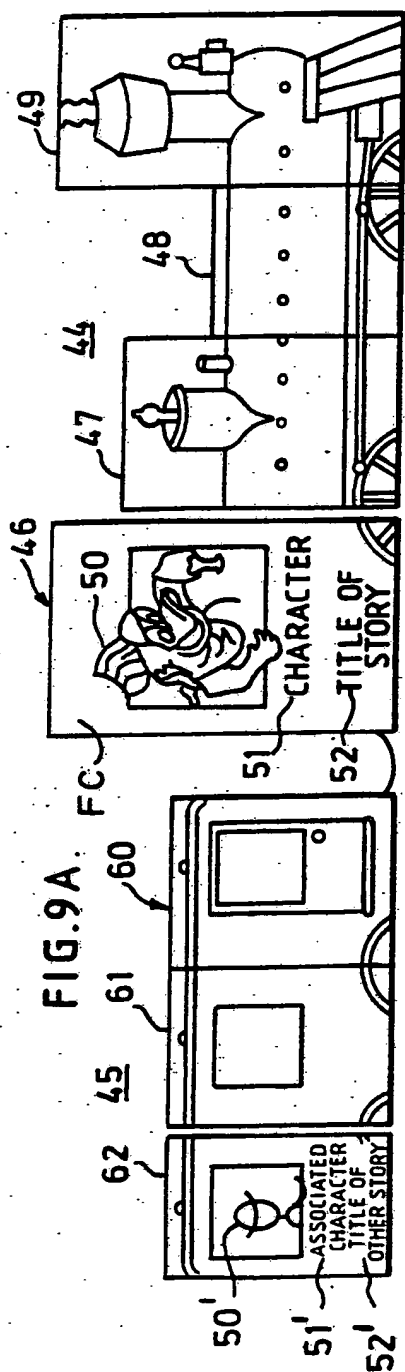
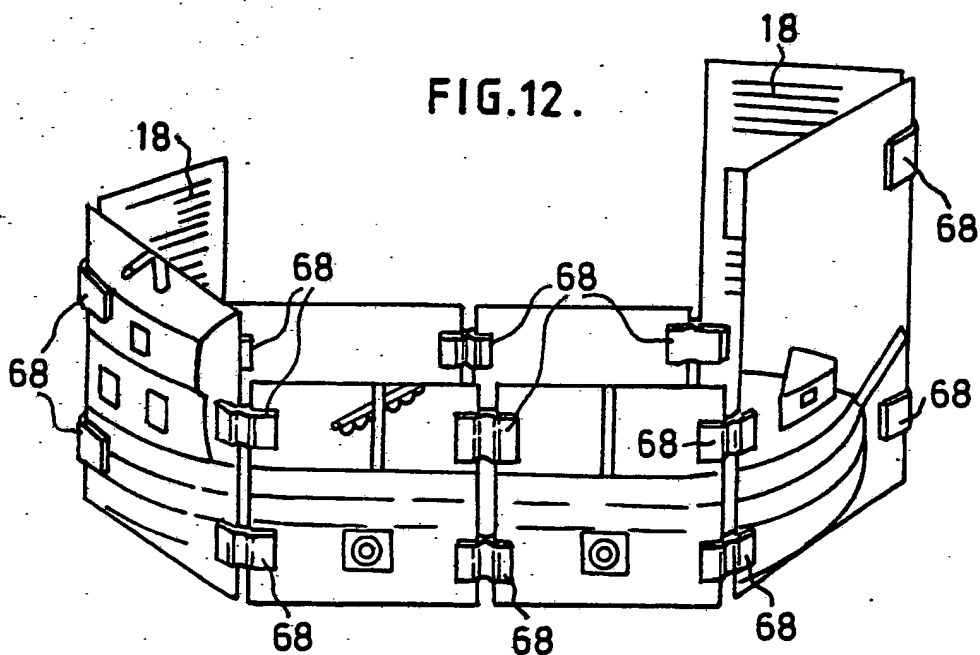
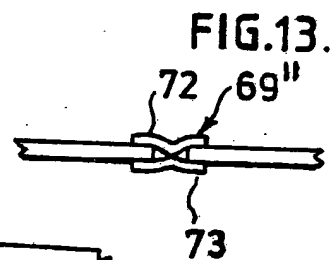
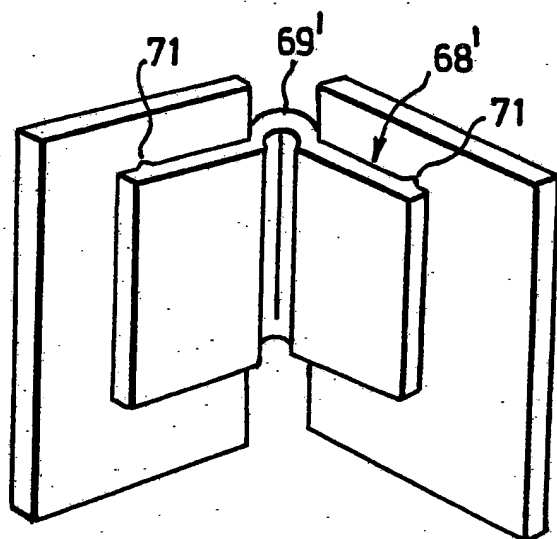
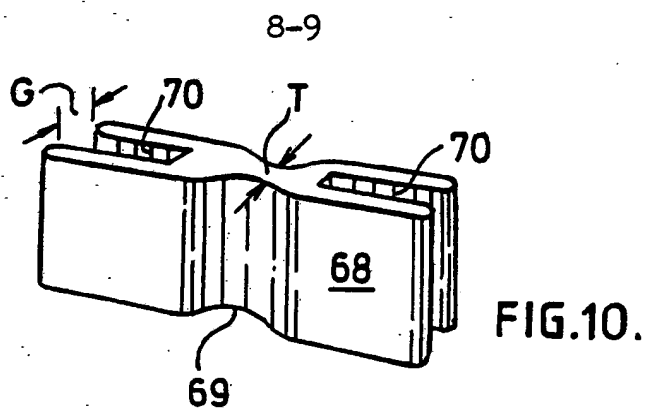
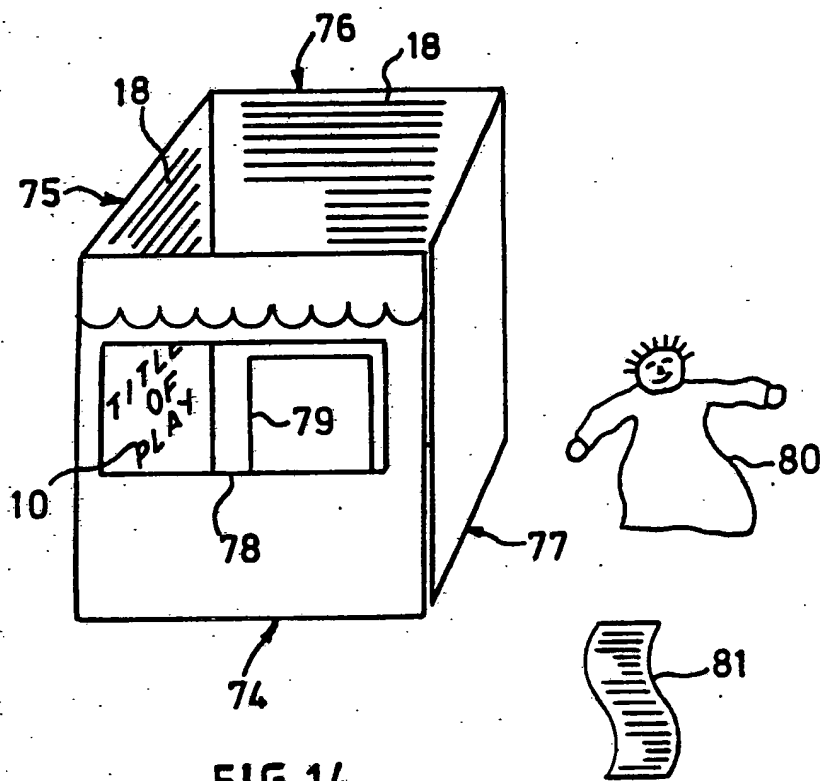


FIG. 8

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INTERNATIONAL SEARCH REPORT

International Application No PCT/GB 88/00612

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) *		
According to International Patent Classification (IPC) or to both National Classification and IPC		
IPC ⁴ : A 63 H 33/38		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
IPC ⁴	A 63 H	
Documentation Searched other than Minimum Documentation to the extent that such Documents are included in the Fields Searched *		
III. DOCUMENTS CONSIDERED TO BE RELEVANT *		
Category ⁹	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
A	FR, A, 2443264 (SCERAB) 4 July 1980, see page 2, lines 16,17; figures	1,2,3,5
A	US, A, 3434233 (DEAN) 25 March 1969, see claim 1; figures (cited in the application)	1,2,3,4,8
<p>* Special categories of cited documents: ¹⁰</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"Z" document member of the same patent family</p>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	
26th October 1988	16 NOV 1988	
International Searching Authority	Signature of Authorized Officer	
EUROPEAN PATENT OFFICE	P.C.G. VAN DER PUTTEN	

ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.

GB 8800612

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR-A- 2443264	04-07-80	None	
US-A- 3434233	25-03-69	None	